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scroll down
and click
atmosphere

Name: _____ Core: _____ Date: _____

Atmosphere Interactive Computer Lab

Atmospheric Gases

Let's take a moment to look at what makes up the "air" in the Earth's atmosphere. The air is really a mixture of many different gases, and each gas has its own properties. The composition of air is not constant. It can vary from time to time and place to place.

What gases make up the atmosphere? _____

How much water is in the atmosphere? _____

Water vapor is the source of all clouds and precipitation, but what else is important about water vapor, in terms of our atmosphere? Explain and give examples.

Dust is much more than just little specks of dirt. It includes microscopic particles that are invisible to the naked eye, including _____,

_____, and _____.

So why is dust a big deal? You should be able to find at least two reasons why dust is important. _____

How many oxygen atoms combine to make a molecule of ozone? _____

Why is ozone important? _____

Where is good and bad ozone located?

How thin is the atmosphere? Describe using the basketball analogy. _____

The different layers of the atmosphere

In the **troposphere**, temperature _____ with altitude. Weather occurs in this layer. It's also the layer we live in.

In the **stratosphere**, temperature _____ with altitude. This is because of ozone. When the ozone in this layer absorbs UV light from the sun, it increases in temperature.

In the **mesosphere**, ozone concentration decreases. This means there is less absorption

of UV light in this layer of atmosphere. In this layer the temperature _____.

In the upper atmosphere, called the **thermosphere**, temperatures are HOT. Explain this.

Where is ozone good and why? _____

Ozone in the Troposphere

Where is ozone bad and why? _____

Ozone in the Stratosphere

Show the reaction of how ozone is formed.

_____ + _____ → _____

Show the reaction of how ozone is split.

_____ → _____ + _____

Ozone is valuable to us because of the way it is destroyed – it absorbs UV radiation in the process. Even low-energy radiation can split ozone. These questions are part of the next Interactive Lab.

Answer the questions on the computer screen and also record your answers here.

1. The atmosphere is divided into layers according to

- a. Pressure b. Temperature c. Ozone

2. The two layers of atmosphere in which temperature decreases are

- a. Thermosphere, Mesosphere c. Troposphere, Mesosphere
b. Mesosphere, Stratosphere d. Thermosphere, Stratosphere

3. The two layers of atmosphere in which the temperature increases are

- a. Thermosphere, Mesosphere c. Troposphere, Mesosphere
- b. Mesosphere, Stratosphere d. Thermosphere, Stratosphere

4. Atmospheric pressure _____ with increasing altitude

- a. increases b. decreases c. stays the same

5. Which layer of the atmosphere do you live in?

- a. Troposphere c. Mesosphere
- b. Stratosphere d. Thermosphere

6. Which layer of the atmosphere has the highest amount of ozone?

- a. Troposphere c. Mesosphere
- b. Stratosphere d. Thermosphere

7. In which layer is temperature the highest and concentration of molecules the lowest?

- a. Troposphere c. Mesosphere
- b. Stratosphere d. Thermosphere

8. Which layer's prefix means "middle"?

- a. Troposphere c. Mesosphere
- b. Stratosphere d. Thermosphere

9. Which layer does weather occur in?

- a. Troposphere c. Mesosphere
- b. Stratosphere d. Thermosphere

Are there any other processes or methods that change the amount of ozone in the atmosphere?

Natural forces can alter the amount of ozone. Remember, ozone is very unstable. It reacts easily with other atoms, and will easily donate that free oxygen atom (O_1) to other gases.

Name the 3 other gases: _____, _____, and

How do humans contribute to the destruction of the ozone? _____

Ozone part three - Human factors: Increasing Greenhouse Effect

The human race is changing the Earth's atmosphere in two dramatic ways. What are these two ways? _____

and _____

Measuring the Atmosphere: Temperature, Pressure and Ozone

Welcome to Hot Air Extraordinaire

This lesson has three main Objectives

- Determine the relationship between atmospheric pressure and altitude.
- Determine the relationship between temperature and altitude.
- Determine the location of ozone in the Earth's atmosphere.

Read the instructions that have been provided then you can launch the balloon.

Greenhouse Effect

Earth is so "COOL"! (Heating the Atmosphere)

How is the atmosphere like a greenhouse? _____

_____ is the primary way that air is heated. Convection currents move that heated air around the earth, and the difference between warm and cold air provide the energy needed to create weather.